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GLENN PATENT GROUP  
3475 Edison Way  
Suite L  
Menlo Park, CA 94025

EXAMINER

SUBRAMANIAN, NARAYANSWAMY

ART UNIT PAPER NUMBER

3624

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/607,747

Applicant(s)

SHAO ET AL.

Examiner

Narayanswamy Subramanian

Art Unit

3624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to applicants' request for continued examination filed on April 5, 2005. Amendments to claim 1 have been entered. Claims 1-51 are pending in the application and have been examined. The rejections and response to arguments are stated below.

#### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title".

3. Claims 1-51 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

35 USC 101 requires that in order to be patentable the invention must be a "new and useful process, machine, manufacture, *or* composition of matter, *or* any new and useful improvement thereof" (emphasis added).

Claims 1-51 are rejected under 35 U.S.C. § 101 because; the claimed invention is directed to a non-statutory subject matter. Specifically the method claims as presented do not claim a technological basis in the body of the claim. Without a claimed basis, the claim may be interpreted in an alternative as involving no more than a manipulation of an abstract idea and therefore non-statutory under 35 U.S.C. 101. In contrast, a method claim that includes in the body of the claim structural / functional interrelationship which can only be computer implemented is considered to have a technological basis [See *Ex parte Bowman*, 61 USPQ2d 1669, 1671 (Bd. Pat. App. & Inter. 2001) - used only for content and reasoning since not precedential].

Art Unit: 3624

In order to overcome the 101 rejection above, the following amendment is suggested:  
In the body of the claim include structural / functional interrelationship which can only be computer implemented.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 1-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 recites the limitation "storing a predictive model of debt collection likelihood" that depends on how the model was generated. However the generation step has not been positively recited.

Also the phrase "to determine a subject matter similarities" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Specifically the phrase "to determine a subject matter similarities" is interpreted as an intended use. It has been held that the recitation of "to determine a subject matter similarities" is not a positive limitation but only requires the ability to do so.

Also it is not clear from the limitation "selecting a collection method", if the collection method selected is a different selection method from the ones recited in the first step of the claim or whether it is one of the collection methods recited earlier in the claim.

Also in claim 1, the phrase "but not limited to" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "but not limited to"),

Art Unit: 3624

thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Appropriate clarification/correction is required.

Claims 2-51 are rejected because they depend on a rejected claim.

In claim 43, the limitation “the time period for which an account has been delinquent” has no antecedent basis.

In claim 44, the limitation “the creditworthiness of the holder of a delinquent debt account” has no antecedent basis.

In claim 45, the limitation “the type of debt of an account” has no antecedent basis.

In claim 46, the limitation “the history of collection activities for an account” has no antecedent basis.

In claim 48, the limitation “the amount owed on an account” has no antecedent basis.

In claim 51, the limitation “the number of Collection agencies that have attempted to collect on the debt account” has no antecedent basis.

Appropriate clarification/correction is required.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aleia et al (US Patent 5,991,733) in view of Caid et al (US Patent 5,619,709).

With reference to claim 1, Aleia teaches a computer implemented method of predicting the likelihood of collecting on a delinquent debt on an account, the method comprising storing a predictive model of debt collection likelihood generated using historical data of delinquent debt accounts, the collection methods used in each account, and the success of the collection methods in each account; receiving data of a currently delinquent debt account; selecting a collection method; generating a signal indicative of the likelihood of collecting on the currently delinquent debt by applying the data of the currently delinquent debt account and the selected collection method to the predictive model (See Aleia Column 7 line 26 – Column 8 line 9, Column 8 line 61 – Column 9 line 14, Column 10 lines 2-18 and claim 1) and using said signal indicative of the likelihood of collecting on the currently delinquent debt for, but not limited to, prioritizing collection resource expenditures (See Aleia Column 8 lines 3-29). The historical data is interpreted to include collector's notes. The new limitation "wherein said different types of collectors' notes' subject matter comprises information to determine prior actions taken on said account" is not given patentable weight because the characterization of notes/content is non-functional descriptive matter. The notes could have comprised of any content and that would not have changed the way the step of storing a collector's notes model is performed. Also the phrase "to determine prior actions taken on said account" is treated as an intended use. The scope of the claimed invention is not altered by the presence of the added limitation.

Aleia does not explicitly teach the steps of storing documents and/or notes model as context vectors determining a document or notes word space; transforming current documents/notes into a document context vector and performing any of: comparing said document context vector against context vectors of said documents/notes to determine a subject

Art Unit: 3624

matter similarities result and using said result as input into a model; and using components of said document context vector expressed in context vector eigenbasis as input into a model.

Caid teaches the steps of storing documents and/or notes model as context vectors determining a document or notes word space (See Aleia Column 2 lines 32-44); transforming current documents/notes into a document context vector and performing any of: comparing said document context vector against context vectors of said documents/notes to determine a subject matter similarities result and using said result as input into a model (See Aleia Column 12 line 39- Column 13 line 3); and using components of said document context vector expressed in context vector eigenbasis as input into a model (See Aleia Column 22 lines 29-67).

Both Aleia and Caid are concerned with pattern recognition based on predictive models. Aleia uses quantitative and qualitative data to recognize patterns, and so does Caid although the disclosure of Caid focuses mainly on document data. It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the steps taught by Caid to the disclosure of Aleia. The combination of the disclosures taken as a whole suggests that users would have benefited from analyzing large volumes of information quickly and in a cost effective way.

With reference to claims 3 and 8 Aleia teaches a method of claim 1, wherein the delinquent debt was incurred on a medical service (See Aleia claim 2) or wherein the delinquent debt has been charged-off (See Aleia claim 1).

With reference to claims 9-13 and 17 Aleia teaches a method of claim 1, wherein the collection methods include a set of different letters that can be sent to delinquent debtors (See Aleia claim 4), different times at which a letter can be sent to delinquent debtors (See Aleia

Art Unit: 3624

Column 17 lines 38-42), different phone call approaches (See Aleia claim 4), different debt lifecycle stages when phone calls may be made (See Aleia Column 17 lines 38-42), different debt lifecycle stages at which a letter can be sent to delinquent debtors (See Aleia Column 17 lines 38-42) and different collections specialists who may be assigned to work the account (See Aleia claim 1).

With reference to claims 25, 26, 28-35 and 37, Aleia teaches a method of claim 1, wherein the collection methods include legal actions (See Aleia claim 10), employment of a collection agency (See Aleia claim 4) and wherein the historical data includes information regarding an account before the account became delinquent (See Aleia claim 1), account purchase information (See Aleia claim 1, premium paid includes account purchase information), information regarding the Merchant Category Code of purchases on the account (See Aleia Figure 1I, Column 9 lines 34-36, line of business implies merchant category code), information regarding the amount of account purchases (See Aleia claim 1, premium implies information regarding the amount of account purchases), information regarding account cash transactions (inherent in the disclosure of Aleia regarding transactions), information regarding account payments made (See Aleia claim 1), events related to previous collection activities (See Aleia Column 7 lines 41-60), collectors' notes related to previous collection activities (See Aleia Column 17 lines 29-31) and wherein the collectors' notes use a natural language format (See Aleia Column 17 lines 29-34).

With reference to claims 2 and 4-7, Aleia and Caid combined teach a method of claim 1 as discussed above.



Art Unit: 3624

Aleia and Caid combined do not explicitly teach the steps wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet.

Official notice is taken that the step wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet is old and well known in the art. By identifying these different ways of incurring a delinquent debt, creditors can consolidate their recovery effort and thereby speed up and minimize the cost of recovery.

It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the step wherein the delinquent debt was incurred on a credit card, on a utility bill, on an unpaid check, on mail-ordered goods, or on an electronic transaction via the Internet to the combined disclosures of Aleia and Caid. The combination of the disclosures taken as a whole suggests that by identifying the different ways of incurring a delinquent debt, creditors would have benefited from consolidating their recovery effort and thereby speed up and minimize the cost of recovery.

With reference to claims 14-16, 18-24 and 27, Aleia and Caid combined teach a method of claim 1 as discussed above.

Aleia and Caid combined do not explicitly teach the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency

Art Unit: 3624

financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt.

Official notice is taken that the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt are old and well known in the art. These options help the creditor adopt a collection method that is best suited for a debtor in the recovery effort.

It would have been obvious to one with ordinary skill in the art at the time of applicant's invention to include the steps wherein the collection methods include different days of the week, different monthly dates and different hours of the day during which phone calls may be made, electronic communications that may be made with the debtor, offering debt counseling, debt rescheduling, offering additional credit, changing delinquency financial penalties for an account, offering debt forgiveness, a search for a missing debtor or the sale of a debt to the combined teachings of Aleia and Caid. The combination of the disclosures taken as a whole suggests creditors would have benefited from tailoring a collection method that is best suited for a debtor in the recovery effort.

With reference to claims 36 and 38-41, Caid teaches the steps wherein the notes use preformatted codes (See Caid Column 12 lines 33-38), further comprising transforming the notes into a mathematical representation that encodes contextual similarity of terms contained in the notes (See Caid Column 28 lines 45-57), creating the mathematical representation using a vector

Art Unit: 3624

model (See Caid Column 28 lines 45-57) and creating the mathematical representation using context vector methodology by determining co-occurrence statistics of terms contained in the notes (See Caid Column 28 lines 45-63).

### ***Response to Arguments***

8. In response to Applicant's assertion that Aleia does not teach, suggest or motivate collector's notes in any capacity, the examiner respectfully disagrees. The actions taken by a collector and their outcomes are a part of collector's notes. For instance in Column 11 lines 2-23, Aleia discloses a collector inputting a note after negotiating with a debtor. This would be part of collector's notes. In Column 13 lines 25-46, Aleia again discloses using collector notes.

Applicant's other arguments with respect to claims 1-51 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Narayanswamy Subramanian whose telephone number is (571) 272-6751. The examiner can normally be reached Monday-Thursday from 8:30 AM to 7:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Millin can be reached at (571) 272-6747. The fax number for Formal or Official faxes and Draft to the Patent Office is (571) 273-8300.

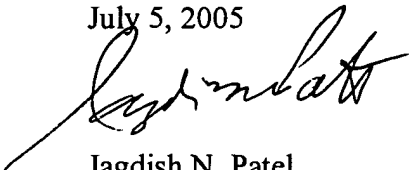
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 3624

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N. Subramanian

July 5, 2005

A handwritten signature in black ink, appearing to read 'Jagdish N. Patel', written over the printed name.

Jagdish N. Patel  
Primary Examiner